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ABSTRACT

The Hudson Institute study, "Workforce 2000," created an awareness that labor markets are going to be dramatically different in the year 2000. The themes from Workforce 2000, events from the early 1990s, and the dynamics of local labor markets can be combined. At the analytical level, these three components form tracks that can be used to analyze the effectiveness of recruitment, hiring, training, and development. Workforce 2000 themes include a forecast that in the year 2000 there will be key shortages of skilled workers; divergent quality of life, income, and life prospects; and a culturally diverse work force. External key events include availability of skilled workers from Department of Defense cutbacks, the underrepresentation of females in higher decision-making jobs, and the challenge to seniority systems from the proposed Civil Rights Act of 1991. Human resource planning and forecasting models can be used to quantify specific job movements in local labor markets related to Workforce 2000 themes. A proposed human resource forecasting technology methodology uses the U.S. Navy's Availability (AVAIL) external labor market modeling system. It can be important in forecasting labor market differences in geographic areas and in specific occupations. (24 references) (KC)

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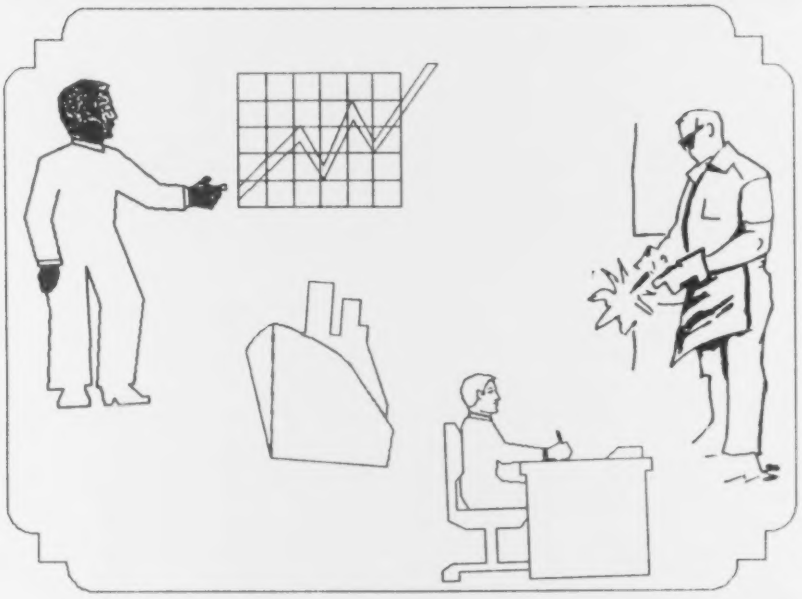
RESEARCH REPORT NO. 53

BUILDING LOCAL LABOR MARKET DYNAMICS INTO WORKFORCE 2000

BY D.M. ATWATER
J.A. NELSON
R.J. NIEHAUS



DEPARTMENT OF THE NAVY

OFFICE OF CHIEF OF NAVAL OPERATIONS (OP-160)

WASHINGTON, D.C. 20350

AUGUST 1991

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This report initially describes the fundamental "Workforce 2000" themes and how they were developed. A proposed role for human resource forecasting then presented which combines the identification of key events in the early 1990s and an external labor market forecasting model, called the availability (AVAIL) system. Key analyses and findings are revisited so that other organizations can replicate the framework to generate guidelines for their own decision making processes.

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BUILDING LOCAL LABOR MARKET DYNAMICS INTO WORKFORCE 2000

by

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August 1991

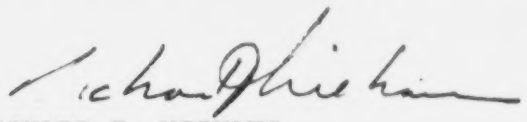
This report was prepared for presentation at the Human Resource Planning Society Research Symposium, Salve Regina University, Newport, Rhode Island, 11-14 June, 1991.

Department of the Navy
Office of the Chief of Navy Operations (OP-160)
Washington, DC 20350

7 August 1991

FOREWORD

Research Report No. 53 was prepared as part of the civilian planning modeling activities of the Program Management Branch (OP-160) of the Manpower, Personnel and Training (MPT) Information Resource Management Division. This report initially describes the fundamental "Workforce 2000" themes and how they were developed. A proposed role for human resource forecasting is then presented which combines the identification of key events in the early 1990s and an external labor market forecasting model, called the availability (AVAIL) system. Key analyses and findings are revisited so that other organizations can replicate the framework to generate guidelines for their own decision making processes.



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BUILDING LOCAL LABOR MARKET DYNAMICS INTO WORKFORCE 2000

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THE BUILDING BLOCKS

During the mid-1980s executives and managers began to develop interest in the work force as it would exist in the year 2000. The Hudson Institute study, which was sponsored by the Department of Labor, entitled Workforce 2000, created an awareness that labor markets were going to be dramatically different. (See the Hudson Institute and Department of Labor (1987)). Some organizations even began to develop human resource plans to address key Workforce 2000 themes so they would have the time to make needed changes. One of the themes from Workforce 2000 which got addressed very early was to improve the basic communication skills of Hispanic workers. Since these early studies were fifteen years before the end of the century, the themes

presented were often broad enough to withstand the test of time. Some of the themes presented for Workforce 2000 are already visible today.

Events are developing in the early 1990s which will certainly affect the degree of change firms will see by the year 2000. Events such as the Gulf War, cuts in federal programs and staffing, and the proposed Civil Rights Act are recognized as agents of change for the decade. While the themes from Workforce 2000, such as projected shortages of skilled workers, are still valid, some organizations seeking skilled workers may well find relief in the experienced workers being laid off by the Federal Government. Human resource planning scenarios are being reviewed and revised to include key events and their impact on bottom line programs.

Human resource forecasting also has a role to play in human resource planning for the work force in the year 2000. Counts of available workers within defined salary levels in local labor markets are being generated and used as bottom line human resource data for revisiting recruitment, training and development programs. Taking different planning views every three years has provided the U.S. Department of the Navy with information on the dynamics of local labor markets.

This paper illustrates how the themes from Workforce 2000, events from the early 1990s, and the dynamics of local labor markets, can be combined. At the analytical level, these three components form "tracks" which can be used to analyze the effectiveness of recruitment, hiring, training and development.

This paper initially describes the fundamental Workforce 2000 themes and how they were developed. A proposed role for human resource forecasting is then

presented which combines the identification of key events from the early 1990s and an external labor market forecasting model, called the Availability (AVAIL) system. Key analyses and findings for the three different "tracks" are examined and presented using U.S. Department of the Navy data. Finally, the lessons learned from the analyses are revisited so that other organizations can replicate the framework to generate guidelines for their own decision making processes.

WORKFORCE 2000 THEMES

According to a recent study of work force planning among a group of "best in class" organizations, the trend in human resource planning is to address the needs of operating business units. (See William M. Mercer (October 1990)). In corporate America, this emphasis is consistent with: a one year forecasting horizon, clearer linkages between a business unit's strategic plan and a human resource plan, and a focused job classification structure to track human resources. Corporate human resource forecasting and planning functions are becoming more support service oriented. Corporate HR departments are focusing on program development when either multiple business units have common planning needs or longer term human resource issues have relevance to several business units.

With such a short term orientation it is unusual to find concurrently an interest in topics related to the year 2000. Yet the level of activity has also grown over the last five years.

The Hudson Institute is recognized as starting the effort to examine changing market conditions when it completed a milestone study entitled Workforce 2000 and

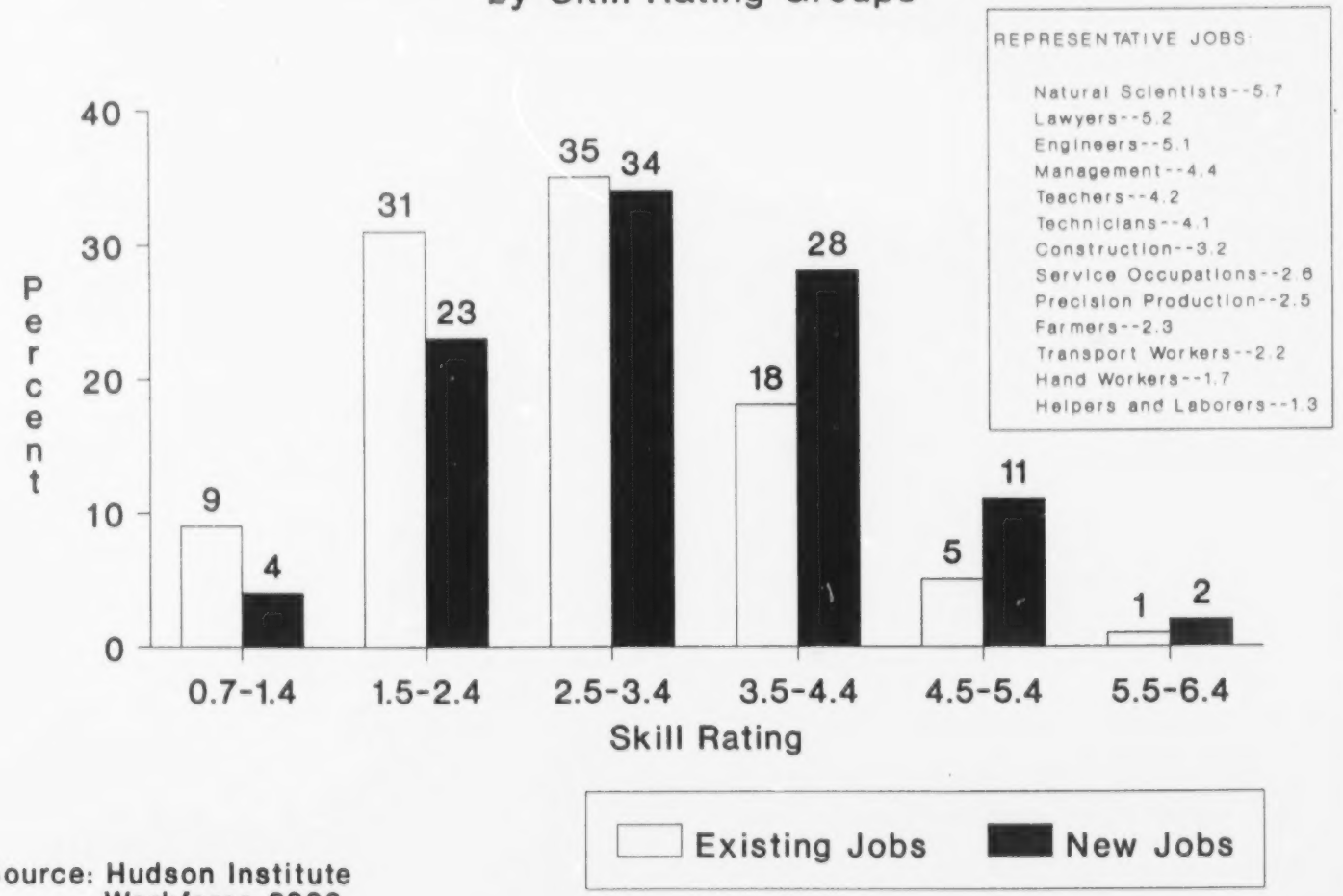
published its findings for the Department of Labor in 1987. Six strategic themes were cited to guide firms toward the year 2000:

- Stimulating World Growth
- Improving Productivity in Service Industries
- Improving the Dynamics of an Aging Workforce
- Reconciling the Needs of Women, Work, and Families
- Integrating Blacks and Hispanics Fully into the Workforce
- Improving Workers' Education and Skills

While these, and other themes, are interesting and challenging, bottom line programs in companies based on such concepts require substantial interpretation. For example, Figure 1 from the Hudson Institute provides a view of expected declines in "low skilled jobs". The figure references a series of representative jobs with different skill ratings. The higher skilled jobs (3.5 and above) are shown to increase more than proportionately by the year 2000 while those below this threshold show decline. The lower the skill ratings of the jobs the larger the decline. The data presented requires interpretation to rate the skills of jobs and to determine the future needs for workers with different skills. While new jobs, or demand for workers, may be greater for higher skilled jobs, the relevance to the bottom line can differ from employer to employer.

The overall picture painted by the Hudson Institute was one of very dramatic changes in labor markets. In fact, the changes were so important that several additional follow-up studies were conducted. For example, the U.S. Department of Labor commissioned a study entitled Opportunity 2000 and the U.S. Office of

Figure 1
Expected Distribution of Jobs by Skill Rating Groups



Source: Hudson Institute
Workforce 2000

Personnel Management (OPM) sponsored the Civil Service 2000 study.

The Opportunity 2000 study listed eight factual themes to assist firms in developing their strategies for the 1990s:

- The Number of Workers Will Fall
- The Average Age of Workers Will Rise
- More Women Will Be On the Job
- One-Third of New Workers Will Be Minorities
- There Will Be More Immigrants Than Any Time Since World War I
- Most New Jobs Will Be In Services and Information
- The New Jobs Will Require Higher Skills
- The Challenges for Business Will Be Immense

The Hudson Institute also identified how companies could adapt to the coming "revolution" by modifying work schedules and building specific programs for minorities, women, disabled workers, older workers, and veterans. Many bottom line human resource programs were suggested for consideration by companies.

Consistent with these themes, the Civil Service 2000 study proposed possible programmatic responses of federal government agencies. The Department of the Navy has also done an analysis of its historical personnel data to understand better the implementation of the Civil Service 2000 study.

A final wave of Workforce 2000 activity came from consulting companies. Studies by the Hay Group and Towers Perrin presented programmatic themes which recorded

what actions or human resource programs were being put in place by corporate America. These efforts took the pulse of corporate responses to demographic and labor force trends. (See Hay Group (1990) and Spectrum (1990)).

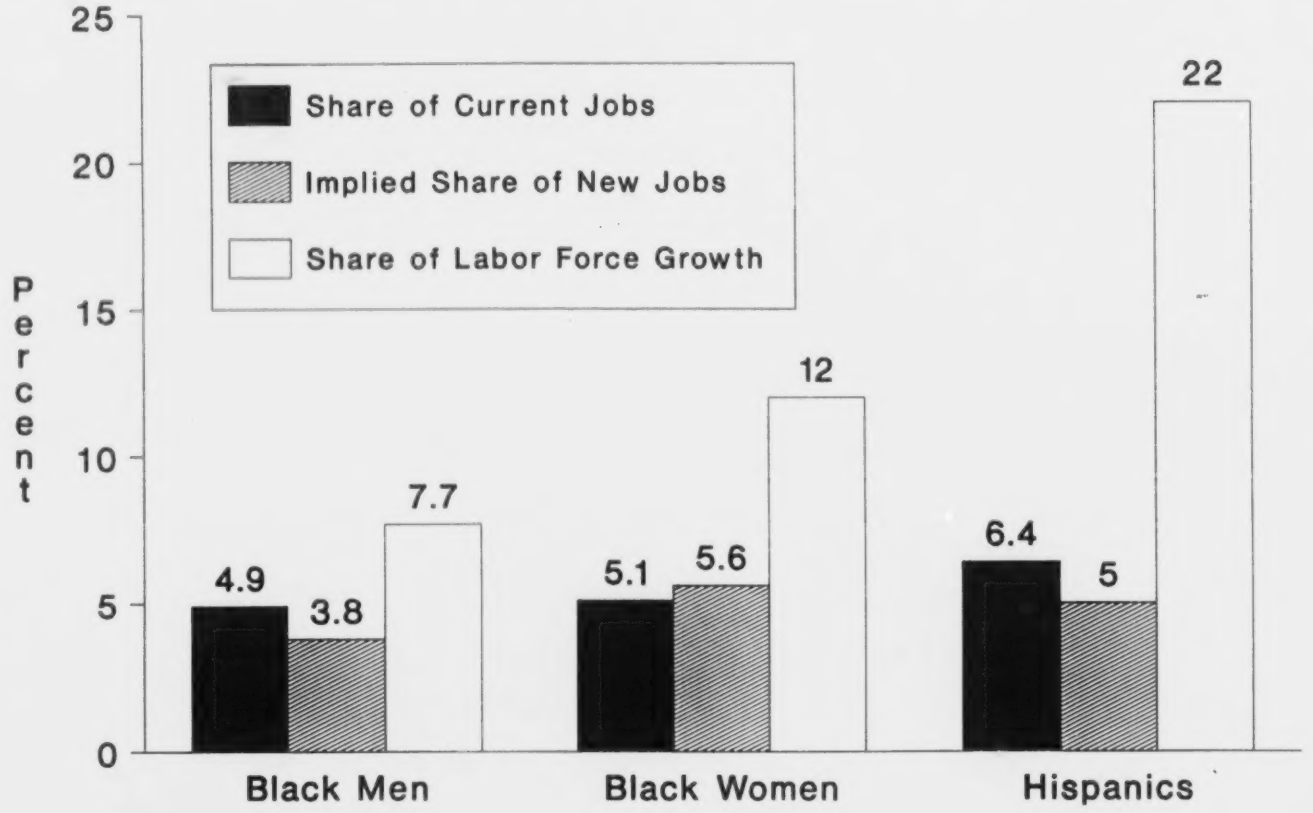
The composite definition of Workforce 2000 used in this paper is actually a "short list" of topics compiled by William M. Mercer from its Workforce 2000 seminar participants. (See William M. Mercer (August, 1990)). In the year 2000, planners predict that the work environment will be characterized by :

- Key shortages of skilled workers
- Divergent quality of life, income and life prospects
- A culturally diverse workforce.

Each of these themes can be associated with earlier Workforce 2000 statements. For example, Figure 2 taken from the Hudson Institute's and Department of Labor's Executive Summary (1990), illustrates an important dimension of a more culturally diverse workforce. The chart shows that Black men and Hispanic men are not expected to get a proportionate share of new job opportunities. Their relative lack of work skills will disqualify them from new job opportunities. If these difficulties occur, they will contribute to the "have and have not" bi-polarization that is predicted for the work force in the year 2000. The challenge to firms in increasingly Black and Hispanic labor markets is how to find or train internally "qualified" Black and Hispanic men.

For women, divergent income has been documented by calculating average compensation levels relative to men. The lack of change in the average compensation ratio by sex and the means to reduce differences have been examined throughout the

Figure 2
Labor Market Job Representation Levels
for Selected Race-Sex Groups
by the Year 2000



Source: Hudson Institute
Workforce 2000

1980s. (See Rosenblum (1979) and Slocum (1985)). The theme remains an important component of Workforce 2000.

These studies and numerous seminars tended to set Workforce 2000 apart from other futuristic milestones. After re-reading the studies, the themes are insightful but very broad. Some of the themes, such as more women will be in the work force and the majority of the new jobs will be in services and information, are not really new. The historical legacy of Workforce 2000 is likely to be that it afforded the nation an opportunity to compile and document the fundamental patterns of change in labor markets and set a point in time when they would be critically important.

A PROPOSED ROLE FOR HUMAN RESOURCE FORECASTING

It is our contention that human resource planning and forecasting can be used to quantify specific job movements in local labor markets related to Workforce 2000 themes. Human resource forecasting logically follows behind and supports clarification of Workforce 2000 themes. Three actions have proven useful in developing human resource programs which can be linked to HR programs that directly affect the bottom line:

1. Build a "short list" of three key Workforce 2000 themes around which management can rally.
2. For each theme, identify at least one current external event which will affect how much can be accomplished around the theme.
3. Generate or collect human resource forecasting information which addresses the theme when it is viewed through the external event.

Human resource planning activities thus aim to determine the speed and diversity of change for different occupations, locations and race and sex groups highlighted by Workforce 2000.

Taking the three themes from Workforce 2000 and identifying the business challenges associated with them is not a generic process. Organizations operate with a different mix of jobs/occupations, operate in different labor markets, and have different profiles of diversity in the work force. Each of the three themes identified by management needs to be focused on the organization's specific human resource situation.

The second action is to find at least one current external event which will affect the Workforce 2000 themes. These events are important because the time horizon for Workforce 2000 is almost ten years in the future while organizations are increasingly looking to take actions during their next operating cycle. The planned bottom line results, in order to be achieved, must be able to withstand numerous adjustments from outside events over the next decade. Progress will be affected by events outside the control of business units.

There is no master list of external key events which are important to all employers. The three events chosen for analysis and discussion in this paper are:

- the availability of skilled workers from Department of Defense cutbacks;
- the under-representation of females in higher decision-making jobs being studied by the Glass Ceiling Commission; and

- the challenge to seniority systems from the proposed Civil Rights Act of 1991.

The analyses and findings presented here do not represent official or actual Navy plans to close specific facilities. This paper reflects no official position by the Department of the Navy or William M. Mercer on the content of the proposed 1991 Civil Rights Act or on the Glass Ceiling Commission contention that underrepresentation is present in the work force. The main purpose of this paper is to show a methodology to analyze these complex issues.

EXTERNAL KEY EVENTS

Shortage of Skilled Workers

The Department of Defense is developing a program to cut back on its military and civilian forces. In April 1991 base closings were announced for 31 installations. (See Weekly Federal Employees News Digest (April 1991)). Workforce 2000 themes predict increased shortages in skilled scientists, engineers, and technician jobs. When Workforce 2000 projections were originally being made, defense cutbacks were not considered. Even today, many communities are voicing concerns about the economic impacts of reductions in force and base closing on their economies. The potential upside of these reductions has not been explored. With more skilled workers leaving the Federal Government payrolls, the shortages in labor markets could be dampened. The role of human resource forecasting, in this case, is to provide information on local labor markets which can be used to examine the net effects of such reductions in force on skilled job shortages in the future.

Women in Higher Level Jobs

The under representation of minorities and women in senior decision- making jobs is also being examined by the Glass Ceiling Commission of the House Education and Labor Committee. (See The Bureau of National Affairs (March 1991)). One of the key Workforce 2000 challenges is to build new work environments using flexible time and part-time workers to accommodate the increasing numbers of women in the work force. Such efforts are not necessarily consistent with increasing the numbers of women in high decision-making jobs.

Progress or change in this area is linked to reducing the differences in income between women and men.

The role of human resource planning in this case is to assess whether the glass ceiling is a myth or a reality. Where it is a reality, differences across geographic areas and job opportunities can be examined to focus human resource programs on business unit specific programs. Once again generic solutions are not expected to be useful to organizations.

Work Force Diversity

The proposed Civil Rights Act (CRA) of 1991 seeks to strengthen the protections offered under the original Civil Rights Act passed in 1964. (See Bureau of National Affairs (March, 1991)). One of the key provisions of the proposed 1991 CRA is the right to challenge discriminatory seniority systems. The movements of women and minorities into craft and operative jobs, where union seniority systems have historically dampened entry, is analyzed later in this paper. Trends from Workforce 2000 generally

show increased availability for women and minorities in craft and operative jobs when limited numbers of new jobs will be created by companies in the next decade. In such cases, the role of human resource forecasting is to pinpoint where business realities and political/social pressures are real and are relatively high.

A selected number of themes from Workforce 2000 can realistically be examined because the effort required to do so is substantial. Current events will both accelerate and dampen the effects throughout the planning period. The roles of human resource forecasting differ for varying themes and events. Two common roles for human resource forecasting have consistently occurred. The first is to improve the ability of organizations to achieve specific business unit results. The second is to picture the dynamics of the decade ahead as a moving target.

FORECASTING METHODOLOGY

The human resource forecasting methodology and tools used to study local labor market dynamics in this paper are not new. (See Atwater, Bres, Niehaus and Sheridan (1983)). The specific human resource forecasting tools used here are called external local labor market models. External local labor market models require detailed definitions of key concepts to be developed. The definitions provided here include: local labor markets, target groups, measurement calculations and dynamics.

In this paper, local labor markets can be either metropolitan areas or regional areas. External models estimate qualified worker and non-worker counts and representation ratios of race-sex groups within a local labor market. In contrast, Workforce 2000 themes and most external events are discussed and presented on a

national level.

A specific set of jobs, human resource groups, such as race-sex groups, and a predefined forecasting horizon, such as 1996, are also prepared for the external local labor market models. Unlike Workforce 2000 groups, the jobs used in this paper are business unit specific.

Finally, a well-defined forecasting calculation is used. Availability ratios are calculated for a job group as the number of available persons in a target group divided by the total number of available persons in the local labor market. Target groups are further defined to focus on race-sex subgroups. Three points are important to remember about labor market availability measures:

- Both workers who meet experience and wage qualifications for jobs and non-workers who are occupationally qualified and find offered wages attractive enough to begin work are counted as available.
- Availability ratios are a closed system. If one race-sex group's numbers decrease, other groups must increase so that 100% is always the bottom line.
- Availability results change based on any of the definition components: geographic area, jobs defined, wages offered, forecasting timeframe, and target groups identified.

Whereas availability is a useful measure for forecasting it is not necessarily a "stand alone" labor market measure. Because it can be affected by a combination of factors including wages, geographic migration, and graduation rates from educational

institutions, analyses often require more detailed follow-up analyses. It is used here because it is a proven front-end forecasting measure which is flexible enough to bridge Workforce 2000 themes and defined events. More detailed forecasting methods, such as best fit goal programming, have been used by the Department of the Navy to complete the forecasting. (See Niehaus (1978, 1985)).

Throughout this paper, we refer to the dynamics of local labor markets. The dynamics we refer to are drawn from changes in availability ratios based on projections from different points in the last decade. As shown in the findings section, important changes in local labor markets occurred between 1983 and 1985 when much of the data was being collected and analyzed for the Hudson Institute study, and from 1986 to 1988. In this paper, the dynamics of local labor markets refer to recorded differences between these two periods.

Human resource forecasting results used in this paper were generated using the U.S. Navy Department's Availability (AVAIL) external labor market modeling system. (For methodology see Atwater (1988)). This system is part of the Civilian Occupation Planning Estimates System (COPES). (See Atwater, Bres, Nelson and Niehaus (1988)). Descriptions of methodology, data sources, modeling variables and reports from the AVAIL system are not repeated in this document.

Because dynamics of local labor markets are the focus of this paper, two different sets of forecasting data were generated and compared. Figure 3 shows the basic comparison. In simple terms, the AVAIL model calculates external labor market results using a baseline Census snapshot for 1980, a growth calculation from a three

year series of Current Population Survey (CPS) data, and Navy wage data for a benchmark period.

As shown in Figure 3, two views of external labor market conditions in 1996 were generated using the AVAIL system. The "early" view was based on growth factors calculated from the 1983-1985 CPS files. The "late" view followed by three years (1986-1988). The dynamics of local labor markets reflect differences in 1996 based on the "late" versus "early" results.

It should be noted that the next planned update of this analytical framework is expected to involve the replacement of the 1980 EEO file with the updated 1990 Census (EEO) file and another three year series of CPS files. This analytical milestone will focus on revalidation of the AVAIL model. A project is underway to separate numerical differences due to CPS data errors from "real" local labor market dynamics. As part of this analysis, the target projection date will be pushed out to the year 2000 and three comparisons will be made (the 1983-85 view, the 1986-1988 view and the new 1990 Census (EEO) base with a 1991-1993 view).

ANALYSIS AND FINDINGS

A "track" is formed by the combination of a Workforce 2000 theme, at least one major current event and dynamic labor market information. The tracks provide decision-makers with information to develop bottom line results through specific human resource programs. The three tracks analyzed in this paper are shown in Figure 4. A specific track is identified by reading across a line. For example, the first track

Figure 3
AVAIL Data Flows
Local Labor Market Dynamics

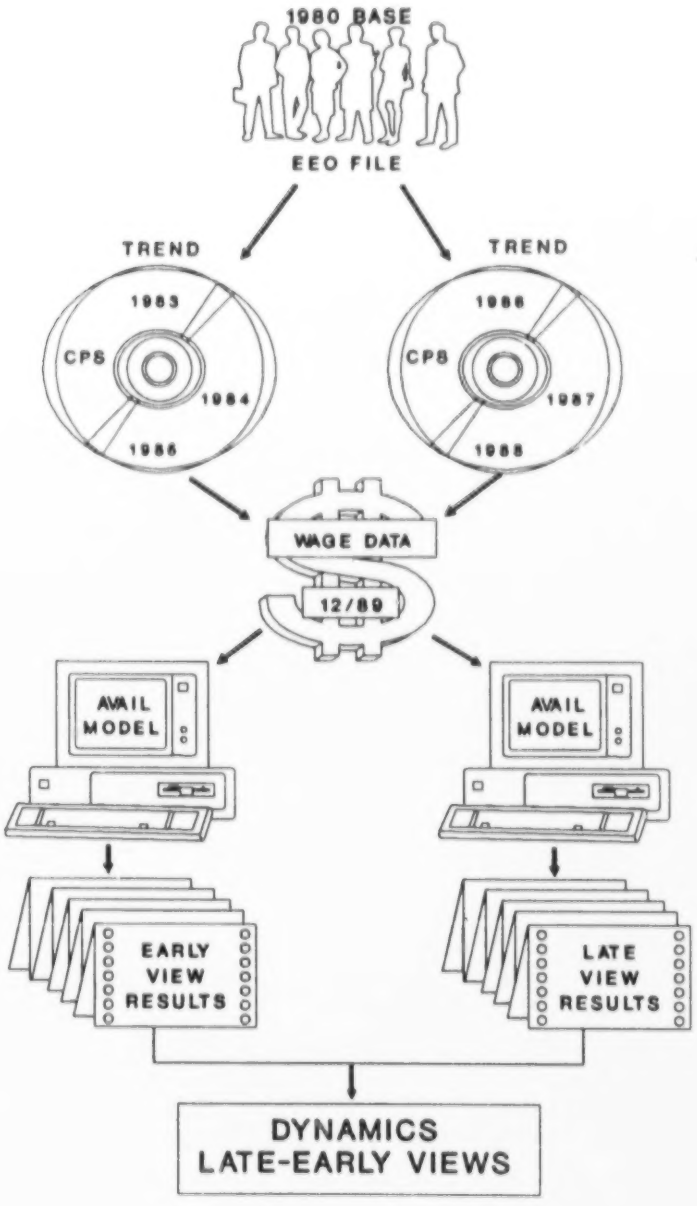


Figure 4
Illustrative Planning Tracks

Workforce 2000 Theme	1991 Key Event	Dynamic Local Labor Market Data
Shortage of skilled workers	Department of Defense Reductions-in-Force (RIFs)	Technicians in salary ranges by location
Women in higher level jobs	Glass Ceiling Commission	Women in high paying jobs by location over time
Work force diversity	Proposed Civil Rights Act of 1991	Race/sex availability in crafts and operative jobs across locations over time

addresses:

- Workforce 2000 theme: Shortage of Skilled Workers;
- 1991 Key Event: Navy Civilian RIFs of Skilled Workers; and
- Dynamic Local Labor Market Data: Groups of technicians in salary bands in over 60 local labor markets.

The second track addresses the divergent income theme for women. It seeks to determine if under-representation of women in high-level decision-making jobs is a myth or reality. The third track focuses on the cultural diversity in the work force. Specific bottom line results are cited for each of the tracks in the findings section of this paper.

Shortage of Skilled Workers

A key theme associated with Workforce 2000 is an increasing shortage of skilled workers. One of the first tasks managers face in discussing this theme is to identify what skills or jobs are of interest to them. Two jobs are used to illustrate the integration of labor market forecasting and Workforce 2000: Science & Engineering technicians and Sub-Professional technicians.

In Table 1, results from ten local labor markets are presented for the two job groups. The numbers shown are the ratio of the local Navy work force to the available work force. In this case, the availability results were calculated using the 1986-1988 CPS trends. No significant differences were found using the 1983 to 1985 CPS trends and the 1986 to 1988 data.

The job groups are further broken down into pay or salary groupings, called pay

Table 1
Ratio of Local Navy Work Force to Available Labor Force as of January, 1990

Local Labor Market / *Occupation*	Pay Grade A	B	C	D
Charleston, SC				
Science & Engineering Technicians	11.5	17.1	43.8	5.3
Sub-Professionals & Technicians	3.1	26.6	5.4	1.7
Pensacola, FL				
Science & Engineering Technicians	1.0	3.0	12.8	1.1
Sub-Professionals & Technicians	3.8	60.6	26.4	4.1
Albany, GA				
Science & Engineering Technicians	0.0	5.1	40.3	4.9
Sub-Professionals & Technicians	3.4	43.6	29.7	1.8
Key West, FL				
Science & Engineering Technicians	0.0	1.6	16.3	0.0
Sub-Professionals & Technicians	2.8	31.9	6.7	0.0
Jacksonville, FL				
Science & Engineering Technicians	2.5	5.1	13.6	3.5
Sub-Professionals & Technicians	2.9	17.8	14.1	0.7
Cherry Point-Camp Lejeune, NC				
Science & Engineering Technicians	4.1	11.7	49.9	7.8
Sub-Professionals & Technicians	3.1	35.7	7.7	2.9
Bay St. Louis-Pascagoula, MS				
Science & Engineering Technicians	2.5	2.9	18.0	1.8
Sub-Professionals & Technicians	1.1	12.1	10.4	0.0
Oak Harbor, WA				
Science & Engineering Technicians	0.8	2.1	31.1	5.6
Sub-Professionals & Technicians	2.3	15.5	6.7	0.0
Portsmouth, NH-Brunswick, ME				
Science & Engineering Technicians	9.1	8.9	31.6	4.3
Sub-Professionals & Technicians	0.4	4.5	7.4	1.4
Crane, IN				
Science & Engineering Technicians	5.3	53.4	65.5	7.3
Sub-Professionals & Technicians	0.1	18.1	9.6	0.0

Grades translate into approximate salary ranges (as of 12/89):

A: $8,500 - $16,000
B: $16,000 - $26,000
C: $24,000 - $45,000
D: $41,000 - $74,000

Source: Department of Navy Civilian Occupation & Planning Estimates System (COPES)

grades in the Navy, so that skills can be examined. In relationship to the proposed Department of Defense base closings, the findings show possible effects on local labor markets. In particular, the following should be noted:

- Different local labor markets would have different effects. Strong effects on Scientist & Engineering Technicians do not necessarily mean strong effects on Sub-Professional technicians;
- Science and Engineering reductions would have strong effects in the high pay/skill subgroup C (Grade 9-12--approximate salary range $24,000-$45,000) with little effect in the lowest pay/skill subgroup;
- In the Sub-Professional technicians group the reductions would be most significant in the middle pay/skill subgroup B (Grade 5-8--approximate salary range $16,000-$26,000); and
- The mix of effects across the job/skill groups varies so that bottom line effects are site or location specific.

The results clearly point out the value of job/skill specific information in local labor markets when assessments of skill shortages are being made. Good communications between large employers who are reducing their work forces can have solid bottom line effects. In an actual case, Mare Island Navy shipyard in Northern California used its knowledge of the local labor market to structure a successful job fair. This assessment took into account labor market conditions and maximized the placement of its skilled workers to outside employers who needed such workers.

Women in Higher Level Jobs

The representation of women in high paying jobs was studied from two perspectives. First, a range of high level decision-making jobs was examined. Then a cross-section of management jobs in the Navy was analyzed. Findings are presented in Tables 2 and 3.

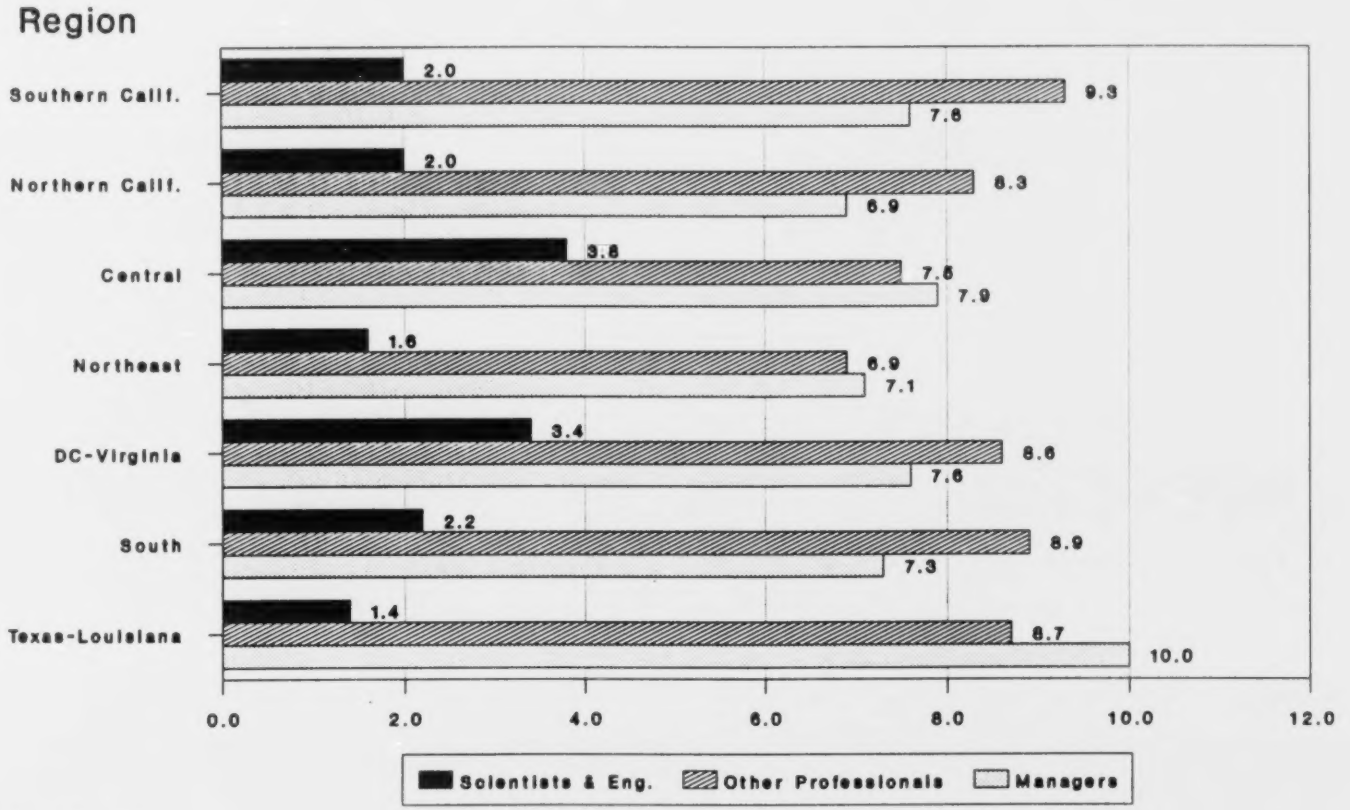
The local labor market results were aggregated into seven regional areas to permit easier graphical presentations. (Navy local labor market lists for each region are shown in Appendix A). Both tables show the availability of white women in 1996. A five year view was selected so that changes in selection, recruitment and placement would be possible if major underrepresentation levels were found.

The high-level technical and senior manager jobs for the Navy are in Grades 13-15 (approximate salary range $41,000-$74,000). This is the career level just below the Senior Executive Service (SES) jobs. Table 2 confirms two findings:

- Representation levels for white women in scientist and engineer positions was much lower than in professional and manager positions; and
- Differences in white female representation level across regions were less than across occupations.

Because the results showed that women's representation levels in high decision-making jobs varied substantially by occupation, clear definitions of which jobs are included and which are not included in the high decision making job group is required. From a litigation perspective, the standards by which the Glass Ceiling Commission and the courts will judge the success of companies in providing women access to high

Table 2
White Females in High Level and Senior Manager Jobs (as of 12/89)*



*Grade 13-15
(Range $40,000-$68,000 as of 12/89)

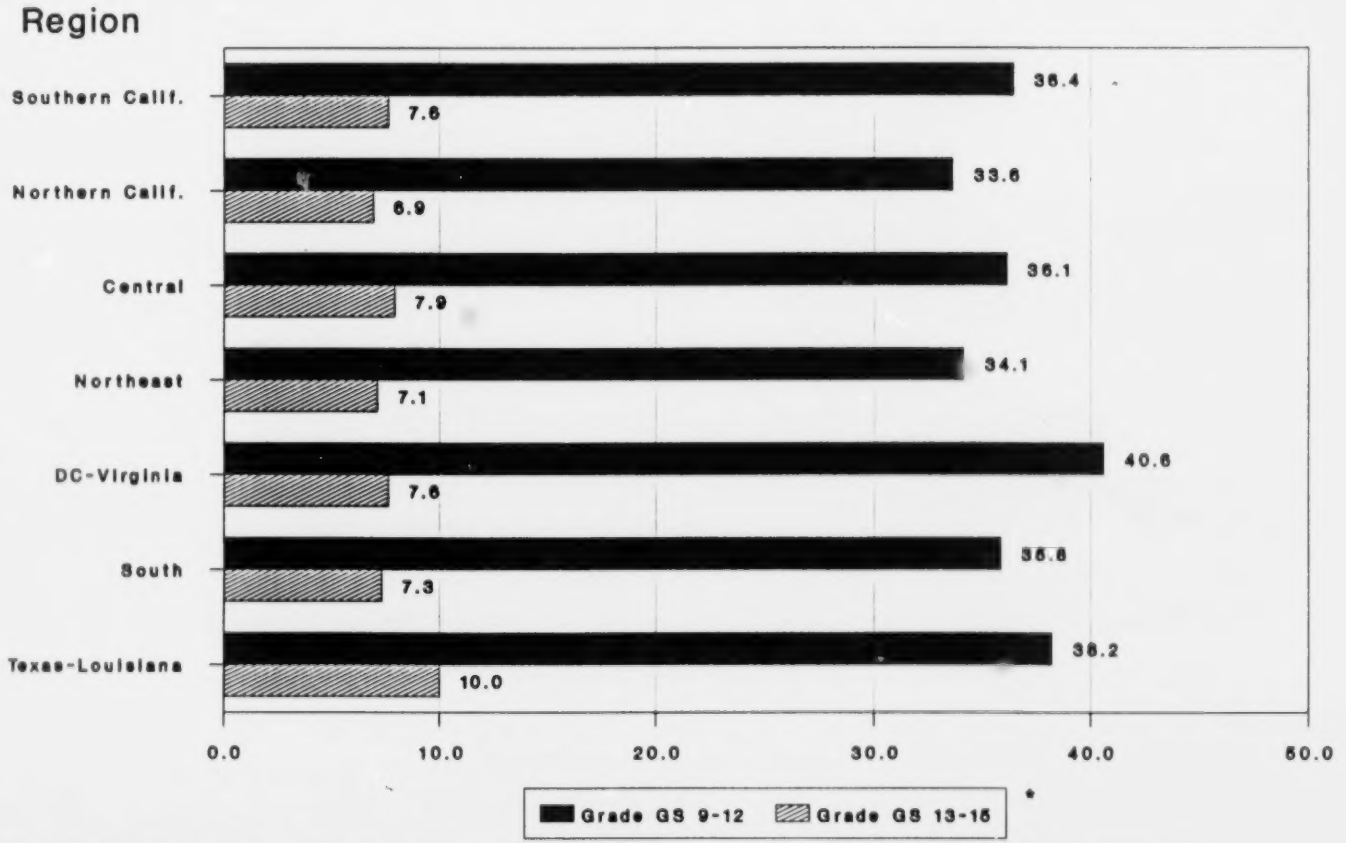
Source: Department of Navy AVAIL System

decision-making jobs will be significantly affected by the mix of jobs included in the senior group.

Table 3 presents a cross sectional view of the dynamics of two salary/skill grade subgroups. One of the main issues being discussed about the glass ceiling is whether it is a myth or a reality. The data in Table 3 would tend to support the conclusion that much of the glass ceiling issue is generational. The results in this table are differences in (growth) in representation between the late and early period forecasts for 1996. A figure such as 36.4% within Grade 9-12 (approximate salary range $24,000-$45,000) for Southern California means that the representation level of white females in junior manager and administrative specialist jobs was projected to increase 36.4% by 1996 based on updated trend data from 1983-85 to 1986-88. As Table 3 shows, much higher representation increases are found for women in Grades 9-12 (approximate salary range $24,000-$45,000) jobs regardless of region. Grades 13-15 (approximate salary range $41,000-$74,000) job increases are positive but smaller. If there is an existing base of qualified managers in the Grades 9-12 pool and the number of job openings is less in the Grade 13-15 pool, the lower but positive growth rate is likely to be both reasonable and structural/generational.

The standards by which organizations will be judged compare internal changes with external labor market changes. From an external labor market standpoint, the movement of women into high decision-making jobs is quantifiable. Based on the availability ratios, additional progress should be visible by the mid 1990s. Organizations like the Navy Department, which tracks such representations issues, have the

Table 3
White Females in Management Jobs
(as of 12/89)



* Grade 9-12 range approximately $24,000 - $45,000; Grade 13-15 approximately $41,000 - $74,000 (as of 12/89) Source: Department of Navy AVAIL System

information needed to confirm their progress, put their achievements in perspective, and hold human resource managers responsible for their actions over five year planning horizons.

Work Force Diversity

Work force diversity was examined across race groups (White, Black and Hispanic) and sex (male and female) groups. Differences between 1983-1985 trends for availability and 1986-1988 availability projections for 1996 in each of seven geographic areas were tabulated and compared. The findings shown in Table 4 highlight the largest changes in race-sex representation values. Changes varied by sex-race group and by job category across local labor markets.

The changes in representation are examined based on an expansion of rights to challenge seniority systems as proposed in the Civil Rights Act of 1991. Unlike the previous two tracks, the significance of the external event (the proposed Civil Rights Act of 1991) played a key role in the selection of the jobs and forecasting parameters for this analysis. In particular, craft and operative jobs which tend to be unionized have strong seniority system programs.

The results shown in Table 4 illustrate that a national solution to work force diversity is not reasonable. No single policy can address issues of representation for White women in the Northeast, Hispanics in Southern California and Black males in the South. The proposed challenges to seniority systems would affect companies with local facilities throughout the U.S. in different ways.

The projected declines shown for race-sex groups are even associated with

Table 4
Key Labor Market Diversity Measures In 1996

Labor Market	Race-Sex Priority	Job Priority
Southern California	-10.2% Hispanic males	Crafts
Northern California	**	**
Central	-3.5% white female	Crafts
North East	-3.5% white female	Operatives
DC/ Virginia	-8.2% Black male	Crafts
South	+4.2% Black male	Operatives
Texas/Louisiana	+7.0% Black male	Operatives

**No significant change predicted.

Source: Department of the Navy AVAIL System special reports, 1991

different factors. In the Southern California case, the lack of qualified Hispanic workers occurs in a labor market where increasing numbers of qualified non-Hispanic workers are relocating to the region to produce a declining Hispanic representation level. Seniority systems could be inappropriately challenged if Hispanic representations do not increase in this geographic area.

White female projected declines in the Central and Northeast regions reflect expected changes in their selection for white collar jobs. Seniority systems may be challenged on the basis that they have created selection barriers in this area.

Projected declines of black males in the DC/Virginia region result from larger increases in white male availability. Projected increases in Black male representation for jobs in the South and Texas/Louisiana reflect increased concentration rather than diversification. Seniority systems may need to be modified to keep pace with these increases to avoid challenges in this labor market.

Each human resource forecasting result is part of a bigger picture which makes up the diversity of the work force predicted for the year 2000. Bottom line programs which accurately take into account the specifics of local labor market dynamics can expect greater success than broad, national policies/programs.

LESSONS LEARNED

As shown in this paper, key events in the early 1990s will alter the speed and direction of change in labor markets as the year 2000 approaches. With such changes and the needs of organizations to address job, location and race-sex specific issues, techniques such as external local labor market forecasting can play significant information

roles. While the results presented here do not provide a complete answer to the development of solid bottom line programs to address the important human resource issues facing business units in the 1990s, there are several important lessons:

- Differences in the mix of human resources across geographic areas can be important. Workforce 2000 and generic programs will not have equal effects on business units in different local labor markets.
- Job specific differences can be dramatic. Even within job group different wages/salaries and qualifications can affect predicted results. Events, such as legislation and federal programs, do affect the pace and direction of change.
- HR planning and forecasting information exists to provide more than a static view every ten years of the external labor markets. These tools can provide insights into the dynamics of labor markets which focus on Workforce 2000 themes and key events.

With the release of the 1990 Census, there will be a surge of interest in external local labor market forecasting. This data will provide organizations with an excellent opportunity to benchmark their specific bottom line issues against the Workforce 2000 themes and external events of the period. Now is an appropriate time to plan how to effectively use local labor market data from the 1990 Census, Workforce 2000 themes and current events to implement human resource programs.

Appendix A
Navy Local Labor Markets for Seven Regions

Southern California - Arizona

803 San Diego, CA
810 Long Beach, CA
811 Port Hueneme, CA
817 China Lake, CA
828 San Bernardino, CA
857 Yuma, AZ
876 El Toro, CA

Northern California - Nevada

805 San Francisco-Alameda, CA
809 Vallejo, CA
826 San Mateo, CA
837 Oakland, CA
840 San Jose, CA
841 Monterey, CA
852 Lemoore, CA
854 Concord, CA
858 Stockton, CA
861 Fallon, NV

Central

219 Crane, IN
220 Indianapolis, IN
229 Great Lakes, IL
233 Cleveland, OH
942 Kansas City, MO

Northeast

112 Portsmouth, NH
115 Newport, RI
136 New London, CT
153 Boston, MA
525 Long Island, NY
549 Brooklyn, NY
522 Bayonne, NJ

Northeast (continued)

531 Lakehurst, NJ
546 Colts Neck, NJ
547 Trenton, NJ
604 Philadelphia, PA
616 Mechanicsburg, PA
651 North Philadelphia, PA
660 Warminster-Willow Grove, PA

DC/Virginia

601 Washington, DC
623 Annapolis, MD
625 Patuxent River, MD
648 Dahlgren, VA
674 Quantico, VA
602 Norfolk, VA
627 Yorktown, VA

South

007 Charleston, SC
018 Cherry Point, NC
039 Beaufort, SC
014 Jacksonville, FL
034 Orlando, FL
013 Pensacola, FL
044 Key West, FL
045 Panama City, FL
050 Pascagoula, MS
056 Meridian, MS
021 Louisville, KY
030 Albany, GA
035 Memphis, TN

Texas-Louisiana

332 New Orleans, LA
338 Corpus Christi, TX
359 Dallas-Fort Worth, TX

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